- Are corrosion leaks system-wide or concentrated in local areas? (EC703)

  Data Source:

  R104/109 Cleared Leaks Report 2010-2014. Bare Steel Service Leaks divided by District (North=39.5%, Central=34.5%, South=25.9%)

  Your Choice (weight: 0) --System-wide

- Are there known sources of stray electrical current in the area? (EC705)

  Data Source:

  Electric trains can cause stray current; however, stray current is not monitored on Non-corrosion protected facilities. Answered by M. Meredith

  Your Choice (weight: 0) --Yes

- Are stray currents creating problems? (EC706)

  Data Source:

  Stray current is not measured on Bare Steel Piping, so it not known if stray current has specifically caused leaks on bare steel pipe. Answered by M. Meredith

  Your Choice (weight: 0) --No

- Review the guidance. (ECCSQ0)

  Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (ECCSQ1)

  Data Source:

  R43B WAM Report - 94% of all bare steel services <= 2" diameter. 99.3% of all bare steel services are Low Pressure (6" water column). There is no bare steel unprotected main piping in the system. Answered by M. Meredith

  Your Choice (weight: 0) --About the same

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (ECCSQ2)

  Data Source:

  Generally, bare steel services are located on residential service pipes. WAM Facility Reporting

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (ECCSQ3)

  Data Source:

  CFirst response time reports.

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (ECCSQ4)

  Data Source:

  Section relates to service pipes only.

  Your Choice (weight: 0) --Low

- **External Corrosion (CORRECSTL-UC) (Unprotected, Coated Steel - Entire System)**

  - Interview Start (CORRECSTL-UC)

    Your Choice (weight: 0) --Continue

  - Risk assigned for protected versus unprotected (AR-1u)

    Your Choice (weight: 5) --Unprotected

  - Are repaired corrosion leaks per mile increasing? (EC102)

    Data Source:

    PHMSA Annual Reports for Miles of Main. WAM R104 for Corrosion Leaks Repaired (2010-2014).

    Your Choice (weight: 0) --

    Table 11.11. End of Year

	Miles of Mains	Corrosion Leaks Repaired	Repaired Leaks/mile
In 2005	0.000	0	0.000
In 2006	0.000	0	0.000
In 2007	0.000	0	0.000
In 2008	0.000	0	0.000
In 2009	0.000	0	0.000
In 2010	0.488	0	0.000
In 2011	0.224	0	0.000
In 2012	0.185	0	0.000
In 2013	0.341	2	5.865
In 2014	0.338	0	0.000

  - SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

    Do you accept this determination? (EC252ok)

    Your Choice (weight: 0) --Accept

  - Your data and choices indicate that repaired leaks per mile of mains are not increasing. (EC252)

    Your Choice (weight: 0) --Continue

  - Are repaired corrosion leaks per service increasing? (EC201)

    Data Source:

    Facility Data from PHMSA 7100 LKMS 2005-2009 WAM R104 for Corrosion Leaks Repaired (2010-2014)

    Your Choice (weight: 0) --

    Table 11.12. End of Year

	Number of Services	Corrosion Leaks Repaired	Repaired Leaks/service
In 2005	181	1	0.006
In 2006	182	2	0.011

In 2007	185	1	0.005
In 2008	187	6	0.032
In 2009	186	2	0.011
In 2010	182	0	0.000
In 2011	181	0	0.000
In 2012	183	0	0.000
In 2013	180	3	0.017
In 2014	177	1	0.006

- SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

  Do you accept this determination? (EC254ok)

  Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per service are not increasing. (EC254)

  Your Choice (weight: 0) --Continue

- Do exposed pipe inspections indicate a corrosion problem? (EC202)

  Data Source:

  Main and Service Maintenance Tickets and Electronic Webforms capture exposed pipe condition.

  Your Choice (weight: 1) --Yes

- Are repaired corrosion leaks, areas of known corrosion or low CP levels system-wide/uniform or concentrated in local areas? (EC301)

  Data Source:

  Per LKMS and WAM Leak Reports - There were only 16 unprotected coated steel leaks due to corrosion reported from 2005-2014. There is no perceived concentration.

  Your Choice (weight: 0) --Uniform

- Have confirmed corrosion leaks occurred on this section? (EC701)

  Data Source:

  LKMS and R104/109 Cleared Leaks WAM Report

  Your Choice (weight: 1) --Yes

- Does section contain leaks found and being monitored that are suspected to be corrosion related and reflect a corrosion problem? (EC702)

  Data Source:

  Suspected leaks on Coated, unprotected steel is generally repaired immediately. Renewal of pipe is main method of repair.

  Your Choice (weight: 0) --No

- Are corrosion leaks system-wide or concentrated in local areas? (EC703)

  Data Source:

  No concentration of leaks for this type from R104/109 WAM Reports

Your Choice (weight: 0) --System-wide

- Are there known sources of stray electrical current in the area? (EC705)

  Data Source:

  Electric trains can cause stray current; however, stray current is not monitored on non corrosion protected pipes. Answered by M. Meredith

  Your Choice (weight: 0) --Yes

- Are stray currents creating problems? (EC706)

  Data Source:

  Stray current is not measured on unprotected bare steel piping. Therefor, we cannot confirm that stray current has caused any corrosion leaks on this type of pipe. Answered by M. Meredith

  Your Choice (weight: 0) --No

- What is the condition of the pipeline coating? (EC710)

  Data Source:

  There are 177 unprotected, coated steel services in the PGL system. This number has not fluctuated greatly since 2005. Assume coating is in good condition or more services would have been repaired and changed to plastic.

  Your Choice (weight: 0) --Good

- Review the guidance. (ECCSQ0)

  Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (ECCSQ1)

  Data Source:

  Of 177 services, 172 are <= 1.5" diameter. 168 are Low pressure (6"water column) Of the 1784 feet of main, 78% is 4" diameter HP and is located at O'Hare International Airport. The remaining is Low pressure.

  Your Choice (weight: 0.1) --Somewhat greater

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (ECCSQ2)

  Data Source:

  78% of mains are at O'Hare International Airport, and are designated as residential, but treated as Business. Answered by M. Meredith.

  Your Choice (weight: 0.15) --Within Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (ECCSQ3)

  Data Source:

  Cfirst leak response time reporting

Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (ECCSQ4)

  Data Source:

  The majority of our unprotected, coated steel main runs at app. 55psi and is located at O'Hare International Airport per WAM facility reports.

  Your Choice (weight: 0.05) --Moderate

- **External Corrosion (CORRECSTL-PC) (Cathodic Protected, Coated Steel - Entire System)**

  - Interview Start (CORRECSTL-PC)

    Your Choice (weight: 0) --Continue

  - Are repaired corrosion leaks per mile increasing? (EC102)

    Data Source:

    PHMSA Annual Reports for Miles of Mains LKMS for Corrosion Leaks Repaired 2005-2009 WAM R104 for Corrosion Leaks Repaired (2010-2014)

    Your Choice (weight: 0) --

    Table 11.13. End of Year

	Miles of Mains	Corrosion Leaks Repaired	Repaired Leaks/mile
In 2005	1212.000	1	0.001
In 2006	1208.000	0	0.000
In 2007	1202.000	6	0.005
In 2008	1198.680	2	0.002
In 2009	1193.370	4	0.003
In 2010	1263.279	6	0.005
In 2011	1170.764	7	0.006
In 2012	1138.190	8	0.007
In 2013	1139.918	8	0.007
In 2014	1129.346	3	0.003

  - SHRIMP has determined that leaks, failures or damages are increasing.**(see guidance)**.

    Do you accept this determination? (EC251ok)

    Your Choice (weight: 0) --Accept

  - Your data and choices indicate that repaired leaks per mile of mains are increasing. (EC251)

    Your Choice (weight: 2) --Continue

  - Are repaired corrosion leaks per service increasing? (EC201)

    Data Source:

    Number of Services from PHMSA 7100 submitted reports. Number of corrosion leaks on Corrosion protected steel services from LKMS and R104/109 WAM Reports.

    Your Choice (weight: 0) --

    Table 11.14. End of Year

	Number of Services	Corrosion Leaks Repaired	Repaired Leaks/service
In 2005	44751	15	0.000

In 2006	44031	23	0.001
In 2007	42998	71	0.002
In 2008	41889	41	0.001
In 2009	40960	44	0.001
In 2010	51683	28	0.001
In 2011	51341	44	0.001
In 2012	49411	35	0.001
In 2013	44797	37	0.001
In 2014	42591	27	0.001

- SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

  Do you accept this determination? (EC254ok)

  Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per service are not increasing. (EC254)

  Your Choice (weight: 0) --Continue

- Do exposed pipe inspections indicate a corrosion problem? (EC202)

  Data Source:

  For Legacy System, Main Maintenance Tickets (form 216-A) & Service Pipe Order tickets (form 32) document visual inspections. These paper tickets are stored downtown. For WAM, webforms have a required pipe condition field. Very seldom is pipe condition poor for corrosion work on cathodically protected pipes. Answered by Max Meredith.

  Your Choice (weight: 0) --No

- Is cathodic protection of the section adequate? (EC203)

  Data Source:

  WAM reports R508BX Corrosion Main Inspection & R509BX Corrosion Service Inspection indicate very low percentage of readings below -0.85V. Question answered by M. Meredith

  Your Choice (weight: 0) --Yes

- Are repaired corrosion leaks, areas of known corrosion or low CP levels system-wide/uniform or concentrated in local areas? (EC301)

  Data Source:

  WAM Reports R508/509 indicate an even distribution of low CP reads among PGL's operating area. Question answered by M. Meredith.

  Your Choice (weight: 0) --Uniform

- Have confirmed corrosion leaks occurred on this section? (EC701)

  Data Source:

  R104/109 WAM Cleared Leaks Reports

  Your Choice (weight: 1) --Yes

- Does section contain leaks found and being monitored that are suspected to be corrosion related and reflect a corrosion problem? (EC702)

Data Source:

No leaks currently being monitored are specifically suspected to be a result of corrosion.

Your Choice (weight: 0) --No

- Are corrosion leaks system-wide or concentrated in local areas? (EC703)

  Data Source:

  R104/R109 WAM CLeared Leaks Report indicate no concentration of corrosion leaks within PGL's system.

  Your Choice (weight: 0) --System-wide

- What percent of your cathodic protection test point readings meet or exceed acceptable cathodic protection criteria? (EC704)

  Data Source:

  WAM reports R508BX & R509BX. Answered by M. Meredith

  Your Choice (weight: 1) --At least 75% of readings exceed -.85 V

- Are there known sources of stray electrical current in the area? (EC705)

  Data Source:

  Stray current possible from electric trains. Answered by M. Meredith

  Your Choice (weight: 0) --Yes

- Are stray currents creating problems? (EC706)

  Data Source:

  When stray current is observed, mitigation efforts are undertaken immediately. These include, but are not limited to, clearing shorts between facilities, installing anodes, and installing impressed current rectifiers. Question answered by M. Meredith

  Your Choice (weight: 1) --Yes

- What is the condition of the pipeline coating? (EC710)

  Data Source:

  For Legacy System, Main Maintenance Tickets (form 216-A) & Service Pipe Order tickets (form 32) document visual inspections. These paper tickets are stored downtown. For WAM, webforms have a required pipe condition field. Very seldom is pipe condition poor for corrosion work on cathodically protected pipes. Answered by Max Meredith.

  Your Choice (weight: 0) --Good

- Is the section cathodic protection provided by rectifier(s) only, anode(s) only, or a combination? (EC720)

  Data Source:

  Answered by M. Meredith

  Your Choice (weight: 0) --Combination

- Review the guidance. (ECCSQ0)

Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (ECCSQ1)

  Data Source:

  Per WAM Facility Reports - For Mains, CP Steel pressure and size is generally larger diameter than PGL's system as a whole. For services, CP steel pressures are generally lower, but pipe diameters are generally larger than the system as a whole. Answered by M. Meredith

  Your Choice (weight: 0.1) --Somewhat greater

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (ECCSQ2)

  Data Source:

  Per WAM facility reports, the majority of all services are found in residential areas.

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (ECCSQ3)

  Data Source:

  Cfirst leak response time reporting.

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (ECCSQ4)

  Data Source:

  From 2014 PHMSA form 7100, steel mains are approx 26% of total main miles and approx 8% of total services. Answered by M. Meredith

  Your Choice (weight: 0.05) --Moderate

- **External Corrosion (CORRECOTHR) (Other Metal - Entire System)**

  - Interview Start (CORRECOTHR)

    Data Source:

    Copper Services

    Your Choice (weight: 0) --Continue

  - Are repaired corrosion leaks per mile increasing? (EC102)

    Data Source:

    From PHMSA Annual Reports (2010-2014)

    Your Choice (weight: 0) --

Table 11.15. End of Year

	Miles of Mains	Corrosion Leaks Repaired	Repaired Leaks/mile
In 2005	0.000	0	0.000

In 2006	0.000	0	0.000
In 2007	0.000	0	0.000
In 2008	0.000	0	0.000
In 2009	0.000	0	0.000
In 2010	0.000	0	0.000
In 2011	0.000	0	0.000
In 2012	0.000	0	0.000
In 2013	0.000	0	0.000
In 2014	0.000	0	0.000

- SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

  Do you accept this determination? (EC252ok)

  Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per mile of mains are not increasing. (EC252)

  Your Choice (weight: 0) --Continue

- Are repaired corrosion leaks per service increasing? (EC201)

  Data Source:

  PHMSA Annual Reports for Number of Services LKMS for leaks repaired 2005-2009 WAM R104 for Corrosion Leaks Repaired on copper services. (2010-2014)

  Your Choice (weight: 0) --

Table 11.16. End of Year

	Number of Services	**Corrosion Leaks Repaired**	**Repaired Leaks/service**
In 2005	20476	9	0.000
In 2006	19852	9	0.000
In 2007	19128	7	0.000
In 2008	18097	15	0.001
In 2009	17466	5	0.000
In 2010	17444	7	0.000
In 2011	17100	3	0.000
In 2012	15457	9	0.001
In 2013	13824	10	0.001
In 2014	13228	1	0.000

- SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

  Do you accept this determination? (EC254ok)

  Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per service are not increasing. (EC254)

  Your Choice (weight: 0) --Continue

- Do exposed pipe inspections indicate a corrosion problem? (EC202)

  Data Source:

  LKMS Database, WAM Leak Reporting

  Your Choice (weight: 1) --Yes

- Are repaired corrosion leaks or areas of known corrosion system-wide/uniform or concentrated in local areas? (EC301)

  Data Source:

  WAM Reports R109/104 Cleared Leaks - Leaks repaired due to corrosion on copper services are generally uniform. Answered by M. Meredith

  Your Choice (weight: 0) --Uniform

- Have confirmed corrosion leaks occurred on this section? (EC701)

  Data Source:

  WAM Reports R109/104 Cleared Leaks

  Your Choice (weight: 1) --Yes

- Does section contain leaks found and being monitored that are suspected to be corrosion related and reflect a corrosion problem? (EC702)

  Data Source:

  There are no currently pending leaks that are specifically suspected to be a result of corrosion.

  Your Choice (weight: 0) --No

- Are corrosion leaks system-wide or concentrated in local areas? (EC703)

  Data Source:

  Per R104/109 Wam Reports for cleared leaks, leaks on copper services due to corrosion are company wide. Answered by M. Meredith

  Your Choice (weight: 0) --System-wide

- Is pipe cathodically protected? (ECOTH1)

  Data Source:

  Answered by M. Meredith

  Your Choice (weight: 4) --No

- What types of metallic pipelines exist within section? (ECOTH2)

  Data Source:

  PHMSA form 7100. Answered by M. Meredith

  Your Choice (weight: 0) --Copper

- Is corrosion occurring due to dissimilar metals? (ECOTH3)

  Data Source:

  Possibly. Per WAM Facility Reports, Mains and service risers are made of dissimilar metals.

  Your Choice (weight: 2) --Yes

- Review the guidance. (ECCSQ0)

Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (ECCSQ1)

  Data Source:

  Generally all copper services are 1.25" diameter. 95% are low pressure. (6" water column) per WAM facility Reports

  Your Choice (weight: 0) --About the same

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (ECCSQ2)

  Data Source:

  Per WAM Facility reports, majority of copper services are in residential areas.

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (ECCSQ3)

  Data Source:

  Cfirst leak response time reporting

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (ECCSQ4)

  Data Source:

  From PHMSA form 7100, copper services represent approx. 2.5% of all PGL services.

  Your Choice (weight: 0) --Low

- **External Corrosion (CORRECCDWI) (Cast, Ductile, Wrought Iron (8" or smaller) - Entire System)**

  - Interview Start (CORRECCDWI)

    Your Choice (weight: 0) --Continue

  - Risk assigned for Cast Iron/Ductile Iron/Wrought Iron (AR-3)

    Your Choice (weight: 5) --Cast Iron/Ductile Iron/Wrought Iron

  - Are repaired corrosion leaks per mile increasing? (EC102)

    Data Source:

    2005-2009 miles of main are from PHMSA 7100. 2005-2009 corrosion leaks from LKMS database. 2010-2015 Miles of Main from WAM Report R43. Number of leaks from WAM Report R104/109

    Your Choice (weight: 0) --

Table 11.17. End of Year

	Miles of Mains	Corrosion Leaks Repaired	Repaired Leaks/mile

In 2005	1482.000	34	0.023
In 2006	1448.000	42	0.029
In 2007	1409.000	66	0.047
In 2008	1372.790	61	0.044
In 2009	1360.192	43	0.032
In 2010	1351.624	36	0.027
In 2011	1323.627	23	0.017
In 2012	1249.642	71	0.057
In 2013	1194.919	65	0.054
In 2014	1148.814	52	0.045

- SHRIMP has determined that leaks, failures or damages are increasing.**(see guidance)**.

  Do you accept this determination? (EC251ok)

  Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per mile of mains are increasing. (EC251)

  Your Choice (weight: 2) --Continue

- Are repaired corrosion leaks per service increasing? (EC201)

  Data Source:

  2005-2014 number of services are from PHMSA 7100. 2005-2009 number of corrosion leaks are from LKMS. 2010-2014 leaks from WAM R104/109 Leak Cleared Report

  Your Choice (weight: 0) --

Table 11.18. End of Year

	Number of Services	**Corrosion Leaks Repaired**	**Repaired Leaks/service**
In 2005	410	0	0.000
In 2006	400	0	0.000
In 2007	391	0	0.000
In 2008	381	0	0.000
In 2009	366	1	0.003
In 2010	397	0	0.000
In 2011	357	0	0.000
In 2012	326	1	0.003
In 2013	317	0	0.000
In 2014	304	0	0.000

- SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

  Do you accept this determination? (EC254ok)

  Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per service are not increasing. (EC254)

  Your Choice (weight: 0) --Continue

- Do exposed pipe inspections indicate a corrosion problem? (EC202)

  Data Source:

  Only 1 leak repaired in last 5 years due to corrosion from WAM database for Services. Mains do have corrosion issue.

  Your Choice (weight: 1) --Yes

- Are repaired corrosion leaks or areas of known corrosion system-wide/uniform or concentrated in local areas? (EC301)

  Data Source:

  Per WAM R104/109 Leak reports - Corrosion leaks for CI/DI mains and services are generally found system wide.

  Your Choice (weight: 0) --Uniform

- Have confirmed corrosion leaks occurred on this section? (EC701)

  Data Source:

  LKMS and WAM Leak Reports

  Your Choice (weight: 1) --Yes

- Does section contain leaks found and being monitored that are suspected to be corrosion related and reflect a corrosion problem? (EC702)

  Data Source:

  Pending leak reports do not include suspected leak cause.

  Your Choice (weight: 0) --No

- Are corrosion leaks system-wide or concentrated in local areas? (EC703)

  Data Source:

  WAM R104/109 Leak Reports

  Your Choice (weight: 0) --System-wide

- Do Cast/Ductile Iron mains have steel laterals connected with no electrical isolation? (CORRECCDWI1)

  Data Source:

  Possible lamp stubs.

  Your Choice (weight: 1) --Yes

- Have fractures occurred on the Cast/Ductile Iron pipes other than those related to excavation activities? (CORRECCDWI2)

  Data Source:

  WAM 104/109 Leak Reporting

  Your Choice (weight: 2) --Yes

- Are the fractures limited to certain diameters? If so, indicate sizes experiencing problems. (CORRECCDWI3)

  Data Source:

  WAM Reports R104/109 Leak Cleared Reporting

  Your Choice (weight: 0) --No

- Do exposed pipe inspections indicate that graphitization is occurring? (CORRECCDWI4)

  Data Source:

  Pipe condition on Maintenance Tickets.

  Your Choice (weight: 1) --Yes

- Review the guidance. (ECCSQ0)

  Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (ECCSQ1)

  Data Source:

  The vast majority of CI/DI pipelines of diameter 8" or less are Low Pressure (6" water column) per WAM Facility Reports.

  Your Choice (weight: 0) --About the same

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (ECCSQ2)

  Data Source:

  Per WAM Facility Report R43A, approximately 85% of mains within this section are designated as residential.

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (ECCSQ3)

  Data Source:

  Per CFirst Leak Response Time reporting.

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (ECCSQ4)

  Data Source:

  From 2009 PHMSA form 7100 <=8" dia CI/DI mains are approx 26% of total PGL main mileage.

  Your Choice (weight: 0.05) --Moderate

- **External Corrosion (CORRECCDWIL) (Cast, Ductile, Wrought Iron (larger than 8") - Entire System)**

  - Interview Start (CORRECCDWI)

    Your Choice (weight: 0) --Continue

  - Risk assigned for Large Cast Iron/Ductile Iron/Wrought Iron (AR-3)

    Your Choice (weight: 3) --Large Cast Iron/Ductile Iron/Wrought Iron

  - Are repaired corrosion leaks per mile increasing? (EC102)

Data Source:

PHMSA Annual Reports for Miles of Mains (2005-2014). LKMS database for corrosion leaks repaired (2005-2009) WAM R109 for Corrosion Leaks Repaired (2010-2014)

Your Choice (weight: 0) --

Table 11.19. End of Year

	Miles of Mains	Corrosion Leaks Repaired	Repaired Leaks/mile
In 2005	541.000	8	0.015
In 2006	530.000	4	0.008
In 2007	520.000	4	0.008
In 2008	510.000	20	0.039
In 2009	510.000	13	0.025
In 2010	500.985	11	0.022
In 2011	497.794	10	0.020
In 2012	481.072	23	0.048
In 2013	457.734	19	0.042
In 2014	446.040	13	0.029

- SHRIMP has determined that leaks, failures or damages are increasing.**(see guidance)**.

  Do you accept this determination? (EC251ok)

  Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per mile of mains are increasing. (EC251)

  Your Choice (weight: 2) --Continue

- Are repaired corrosion leaks per service increasing? (EC201)

  Data Source:

  PHMSA Annual Reports for Number of Services. Legacy LKMS Database for Corrosion Leaks Repaired (2005-2009). WAM Report R104/109 Cleared Leak Report.

  Your Choice (weight: 0) --

Table 11.20. End of Year

	Number of Services	Corrosion Leaks Repaired	Repaired Leaks/service
In 2005	54	0	0.000
In 2006	53	0	0.000
In 2007	53	0	0.000
In 2008	52	0	0.000
In 2009	49	0	0.000
In 2010	50	0	0.000
In 2011	50	0	0.000
In 2012	47	0	0.000
In 2013	44	0	0.000
In 2014	43	0	0.000

- SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

  Do you accept this determination? (EC254ok)

  Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per service are not increasing. (EC254)

  Your Choice (weight: 0) --Continue

- Do exposed pipe inspections indicate a corrosion problem? (EC202)

  Data Source:

  LKMS database - Main leaks. WAM Reporting

  Your Choice (weight: 1) --Yes

- Are repaired corrosion leaks or areas of known corrosion system-wide/uniform or concentrated in local areas? (EC301)

  Data Source:

  From LKMS and WAM databases there were no CI, DI larger than 8" Service leaks. Main leaks did occur at each shop.

  Your Choice (weight: 0) --Uniform

- Have confirmed corrosion leaks occurred on this section? (EC701)

  Data Source:

  Per LKMS database & WAM database.

  Your Choice (weight: 1) --Yes

- Does section contain leaks found and being monitored that are suspected to be corrosion related and reflect a corrosion problem? (EC702)

  Data Source:

  Pending Leak reports do not indicated suspected cause of leak.

  Your Choice (weight: 0) --No

- Are corrosion leaks system-wide or concentrated in local areas? (EC703)

  Data Source:

  LKMS database and WAM database

  Your Choice (weight: 0) --System-wide

- Do Cast/Ductile Iron mains have steel laterals connected with no electrical isolation? (CORRECCDWI1)

  Data Source:

  Lamp Stubs.

  Your Choice (weight: 1) --Yes

- Have fractures occurred on the Cast/Ductile Iron pipes other than those related to excavation activities? (CORRECCDWI2)

  Data Source:

  WAM R104/109 Cleared Leak Reports

  Your Choice (weight: 2) --Yes

- Do exposed pipe inspections indicate that graphitization is occurring? (CORRECCDWI4)

  Data Source:

  WAM R104/109 Cleared Leak Reports

  Your Choice (weight: 1) --Yes

- Review the guidance. (ECCSQ0)

  Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (ECCSQ1)

  Data Source:

  By Section definition, these are the larger size mains and services. Per WAM Report R43A ,these larger mains & services may be low or medium pressure.

  Your Choice (weight: 0.2) --Substantially greater

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (ECCSQ2)

  Data Source:

  Per R43A, approximately 54% of Cast/Ductile Iron mains this size are designated as Business Mains.

  Your Choice (weight: 0.15) --Within Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (ECCSQ3)

  Data Source:

  Cfirst Report - Leak Response Time Reporting.

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (ECCSQ4)

  Data Source:

  By definition, this section pertains to larger diameter mains and services.

  Your Choice (weight: 0.1) --High

- **Internal Corrosion (CORRIC) (PEOPLES GAS - Entire System)**

  - Interview Start (CORRIC)

    Your Choice (weight: 0) --Continue

  - Do inspections of the inside of metal pipe or coupons removed from metal pipe show signs of internal corrosion? (CORRIC101)

    Data Source:

    Per O&M Plan Exhibit X Corrosion Control Policy, Section VI, updated 3/11/2015, Internal Corrosion for Peoples Gas within the city of Chicago is not an issue at this time.

Your Choice (weight: 0) --No

- Have leaks caused by internal corrosion occurred? (CORRIC102)

  Data Source:

  WAM R104/109 Leak Reports

  Your Choice (weight: 0) --No

- Do you receive any gas that is not of transmission pipeline quality? (CORRIC103)

  Data Source:

  Per O&M Plan Exhibit X Corrosion Control Policy

  Your Choice (weight: 0) --No

- Have liquids been found in your distribution piping? (CORRIC104)

  Data Source:

  Strictly water in LP pipelines.

  Your Choice (weight: 2) --Yes

- Are these liquids acidic or corrosive? (CORRIC104a)

  Data Source:

  Water infiltration is generally concentrated to Low Pressure Cast/Ductile Iron mains. No record of corrosive elements.

  Your Choice (weight: 5) --Yes

- Are internal corrosion leaks or corrosive liquid problems system-wide/uniform or concentrated in certain areas? (CORRIC110)

  Data Source:

  Concentrated within PGL's low pressure cast and ductile iron mains and services.

  Your Choice (weight: 0) --Concentrated

- Do you want to section your system into areas of concentrated internal corrosion and/or corrosive liquid problems? (CORRIC111)

  Your Choice (weight: 0) --No

- Review the guidance. (CORRICCSQ0)

  Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (CORRICCSQ1)

  Data Source:

Water infiltration is generally concentrated to Low Pressure Cast/Ductile Iron mains. Main sizes are representative of PGL's system mains as a whole.

Your Choice (weight: 0) --About the same

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (CORRICCSQ2)

  Data Source:

  WAM Facility Reports

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (CORRICCSQ3)

  Data Source:

  Cfirst leak response time reports.

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (CORRICCSQ4)

  Data Source:

  Section pertains to LP areas of the distribution system specifically.

  Your Choice (weight: 0) --Low

Equipment Malfunction Threat

- **Equipment Malfunction (EQIP) (PEOPLES GAS - Entire System)**
  - Interview Start (EQIP)

    Data Source:

    Interview held with Gas Operations Department Engineers and Supervisors

    Your Choice (weight: 0) --Continue

  - How many leak repairs resulting from equipment problems occurred during the years shown? (EQIP-Leak)

    Data Source:

    PHMSA Annual Reports

    Your Choice (weight: 0) --

Table 11.21. Leak Repairs From PHMSA 7100.1-1

	Equipment Malfunction		Totals	
End of Year	**Mains**	**Services**	**Mains**	**Services**
In 2005	6	19	6	19
In 2006	9	28	9	28
In 2007	21	82	21	82
In 2008	15	34	15	34
In 2009	14	4	14	4
In 2010	15	22	15	22

In 2011	29	23	29	23
In 2012	20	8	20	8
In 2013	11	8	11	8
In 2014	5	9	5	9

- Are leaks occurring or do inspections indicate potential equipment malfunctions? (EQ101a)

  Data Source:

  Per WAM R104/109 Leak Reports and vault inspeciton results. Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 3) --

  Valves

  Heaters

  Other

- Does system contain equipment known/prone to malfunction (Industry wide)? (EQ102a)

  Data Source:

  Any industry wide failure prone equipment would be brought to company attention through bulletins from Tech Training and Standards Group. Answered by SME Alonzo Foste, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --

  None of These

- Provide Additional Information (EQ105)

  Your Choice (weight: 0) --

  - **Other Equipment Experiencing Failure (EQ-FailO) (Failing Equipment - Other)**
    - Interview Start (EQ-FailO)

      Your Choice (weight: 0) --Continue

    - Would you like to identify specific makes/models/sizes of failing equipment? (EQ101a)

      Data Source:

      Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

      Your Choice (weight: 0) --Yes

    - What equipment is malfunctioning? (EQ101b)

      Data Source:

      Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

      Your Choice (weight: 0) --

Table 11.22. Equipment

	Make	Model	Size(s)	Description
Gate Stations				All Gate Stations
Medium Pressure Vaults				High Pressure to Medium Pressure Vaults
Low Pressure Vaults				Medium Pressure to Low Pressure Vaults
High Pressure to High Pressure Stations				High Pressure to High Pressure Station

- Provide Additional Information (EQ101d)

  Your Choice (weight: 0) --

  - **Specific Other Equipment Experiencing Failure (EQ-FailO-1a) (Gate Stations - All Gate Stations)**

    - Interview Start (EQ-FailO-1a)

      Your Choice (weight: 0) --Continue

    - What is the inspection/maintenance frequency for this type of equipment? (EQ301)

      Data Source:

      Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

      Your Choice (weight: 0) --Annual

    - Is the equipment malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ302)

      Data Source:

      In 2014, 24" Crawford Meter Run had blown gasket on flange and needed to be replaced. Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

      Your Choice (weight: 0) --Yes

    - Will equipment failure occur because of electric power failure or lightning damage? (EQ303)

      Data Source:

      Back up generators are in place for all gate stations. Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

      Your Choice (weight: 0) --No

    - Is the equipment sized appropriately for current operating conditions? (EQ304)

      Data Source:

      Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

      Your Choice (weight: 0) --Yes

    - Is the equipment installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ305)

      Data Source:

      Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

      Your Choice (weight: 0) --Yes

    - Does the failing element of the equipment cause system pressure to exceed the MAOP? (EQ306)

      Data Source:

      Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

      Your Choice (weight: 1) --Yes

- What is the likelihood of this piece of equipment failing? (EQ307)

  Data Source:

  Highly unlikely due to monitoring by Gas Control and over-pressurization controls. Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations.

  Your Choice (weight: 1) --Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ308)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --High

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  Gate Station Piping is substantially larger size and pressure than the rest of the system as a whole. Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0.2) --Substantially greater

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  Gate Stations are located outside business districts.

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0.1) --High

- **Specific Other Equipment Experiencing Failure (EQ-FailO-1a) (Medium Pressure Vaults - High Pressure to Medium Pressure Vaults)**

- Interview Start (EQ-FailO-1a)

  Your Choice (weight: 0) --Continue

- What is the inspection/maintenance frequency for this type of equipment? (EQ301)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Annual

- Is the equipment malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ302)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- Will equipment failure occur because of electric power failure or lightning damage? (EQ303)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- Is the equipment sized appropriately for current operating conditions? (EQ304)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Is the equipment installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ305)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Does the failing element of the equipment cause system pressure to exceed the MAOP? (EQ306)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --Yes

- What is the likelihood of this piece of equipment failing? (EQ307)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ308)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --High

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0.1) --Somewhat greater

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0.05) --Moderate

- **Specific Other Equipment Experiencing Failure (EQ-FailO-1a) (Low Pressure Vaults - Medium Pressure to Low Pressure Vaults)**

  - Interview Start (EQ-FailO-1a)

    Your Choice (weight: 0) --Continue

  - What is the inspection/maintenance frequency for this type of equipment? (EQ301)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

Your Choice (weight: 0) --Annual

- Is the equipment malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ302)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- Will equipment failure occur because of electric power failure or lightning damage? (EQ303)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- Is the equipment sized appropriately for current operating conditions? (EQ304)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Is the equipment installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ305)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Does the failing element of the equipment cause system pressure to exceed the MAOP? (EQ306)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --Yes

- What is the likelihood of this piece of equipment failing? (EQ307)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 2) --Medium

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ308)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --High

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --About the same

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0.15) --Within Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0.05) --Moderate

- **Specific Other Equipment Experiencing Failure (EQ-FailO-1a) (High Pressure to High Pressure Stations - High Pressure to High Pressure Station)**

  - Interview Start (EQ-FailO-1a)

    Your Choice (weight: 0) --Continue

  - What is the inspection/maintenance frequency for this type of equipment? (EQ301)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --Annual

  - Is the equipment malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ302)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --No

- Will equipment failure occur because of electric power failure or lightning damage? (EQ303)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- Is the equipment sized appropriately for current operating conditions? (EQ304)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Is the equipment installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ305)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Does the failing element of the equipment cause system pressure to exceed the MAOP? (EQ306)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --Yes

- What is the likelihood of this piece of equipment failing? (EQ307)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ308)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --High

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

Your Choice (weight: 0.1) --Somewhat greater

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0.1) --High

- **Other Equipment Experiencing Failure (EQ-FailO) (Failing Equipment - Heaters)**
  - Interview Start (EQ-FailO)

    Your Choice (weight: 0) --Continue

  - Would you like to identify specific makes/models/sizes of failing equipment? (EQ101a)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --No

  - What is the inspection/maintenance frequency for this type of equipment? (EQ301)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --Annual

  - Is the equipment malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ302)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --No

- Will equipment failure occur because of electric power failure or lightning damage? (EQ303)

  Data Source:

  Back up Generators are located at stations that include Cold weather technology field heaters. Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Is the equipment sized appropriately for current operating conditions? (EQ304)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Is the equipment installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ305)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Does the failing element of the equipment cause system pressure to exceed the MAOP? (EQ306)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- What is the likelihood of this piece of equipment failing? (EQ307)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ308)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Low

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Your Choice (weight: 0.2) --Substantially greater

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Your Choice (weight: 0.15) --Within Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Your Choice (weight: 0) --Low

- **Valves Experiencing Failure (EQ-FailV) (Failing Equipment - Valves)**

  - Interview Start (EQ-FailV)

    Your Choice (weight: 0) --Continue

  - Would you like to identify specific makes/models/sizes of failing equipment? (EQ101a)

    Your Choice (weight: 0) --Yes

  - What equipment is malfunctioning? (EQ101b)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --

    Table 11.23. Equipment

	Make	Model	Size(s)	Description
Service Valves				All Service Valves
Distribution Valves				Distribution Valves Not Located in Basins
Network Valves				All Network Valves
Remote Oper Valves				All Remote Op Valves
Kerotest Valve	Kerotest	Prior to Mid 1980's		Kerotest Valve
Security Valves				Slam Shut Security Valves
Gas Operations Distribution Valves				Distribution Valves Located Inside Valve Basins

  - Provide Additional Information (EQ101d)

    Your Choice (weight: 0) --

    - **Specific Valves Experiencing Failure (EQ-FailV-1a) (Service Valves - All Service Valves)**

      - Interview Start (EQ-FailV-1a)

        Your Choice (weight: 0) --Continue

      - Are the valve(s) addressed in this interview classified as critical valves? (EQ301)

        Your Choice (weight: 0) --No

      - What is the inspection/maintenance frequency for this type of equipment? (EQ302)

Data Source:

Service Line valves are not inspected.

Your Choice (weight: 0) --Bi-Annual (Every other year) or Greater

- Do valves stick open or closed? (EQ303)

  Your Choice (weight: 0) --Yes

- Are these valve(s) malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ304)

  Data Source:

  WAM R104/109 Leak Reports

  Your Choice (weight: 0) --Yes

- Does the problem with these valves result in gas leaking outside of the pipeline? (EQ305)

  Data Source:

  WAM R104/109 Leak Reports

  Your Choice (weight: 0) --Yes

- Are leaking problem valve(s) obtaining adequate shut off? (EQ306)

  Data Source:

  WAM R104/109 Leak Reports

  Your Choice (weight: 0) --Yes

- Are the valve(s) installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ307)

  Your Choice (weight: 0) --Yes

- Does the failing element of the valve cause system pressure to exceed the MAOP? (EQ308)

  Your Choice (weight: 0) --No

- What is the likelihood of this valve failing? (EQ309)

  Data Source:

  Per SME panel - service valves are usually operable.

  Your Choice (weight: 1) --Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ310)

  Data Source:

  Per SME panel.

  Your Choice (weight: 0) --Low

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  Section pertains specifically to service line valves.

  Your Choice (weight: 0) --About the same

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  Section pertains specifically to service line valves, of which the vast majority are residential per WAM Facility Reports.

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Data Source:

  This section pertains specifically with service line valves.

  Your Choice (weight: 0) --Low

- **Specific Valves Experiencing Failure (EQ-FailV-1a) (Distribution Valves - Distribution Valves Not Located in Basins)**

  - Interview Start (EQ-FailV-1a)

    Your Choice (weight: 0) --Continue

  - Are the valve(s) addressed in this interview classified as critical valves? (EQ301)

    Your Choice (weight: 0) --Yes

  - What is the inspection/maintenance frequency for this type of equipment? (EQ302)

    Data Source:

    O&M Manual Exhibit I, Distribution Dept. Manual, General Order 0.600

    Your Choice (weight: 0) --Annual

- Do valves stick open or closed? (EQ303)

  Data Source:

  Per WAM Report R108 Valve Inspection List

  Your Choice (weight: 0) --Yes

- Are these valve(s) malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ304)

  Data Source:

  Per WAM Report R108 Valve Inspection List

  Your Choice (weight: 0) --Yes

- Does the problem with these valves result in gas leaking outside of the pipeline? (EQ305)

  Data Source:

  WAM R104/109 Leak Reports

  Your Choice (weight: 0) --Yes

- Are leaking problem valve(s) obtaining adequate shut off? (EQ306)

  Data Source:

  WAM R104/109 Leak Reports

  Your Choice (weight: 0) --Yes

- Are the valve(s) installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ307)

  Your Choice (weight: 0) --Yes

- Does the failing element of the valve cause system pressure to exceed the MAOP? (EQ308)

  Data Source:

  This section deals specifically with isolation type valves.

  Your Choice (weight: 0) --No

- What is the likelihood of this valve failing? (EQ309)

  Data Source:

  WAM R104/109 Leak Reports

  Your Choice (weight: 1) --Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ310)

  Data Source:

  WAM R104/109 Leak Reports

  Your Choice (weight: 0) --Low

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  This section pertains to valves of sizes smaller than 4" diameter.

  Your Choice (weight: 0) --About the same

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  WAM Facility Reports

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Data Source:

  This section pertains to valves smaller than 4" diameter. Answered by SME Alonzo Foster.

  Your Choice (weight: 0) --Low

- **Specific Valves Experiencing Failure (EQ-FailV-1a) (Network Valves - All Network Valves)**
  - Interview Start (EQ-FailV-1a)

    Your Choice (weight: 0) --Continue

  - Are the valve(s) addressed in this interview classified as critical valves? (EQ301)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --Yes

  - What is the inspection/maintenance frequency for this type of equipment? (EQ302)

    Data Source:

    O&M Plan (Exhibit XII) Gas Operations Section Manual, Chapter 5, Section 2

Your Choice (weight: 0) --Annual

- Do valves stick open or closed? (EQ303)

  Data Source:

  WAM Report R108 Valve Inspection List

  Your Choice (weight: 0) --Yes

- Are these valve(s) malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ304)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Does the problem with these valves result in gas leaking outside of the pipeline? (EQ305)

  Data Source:

  WAM R104/109 Leak Database

  Your Choice (weight: 0) --Yes

- Are leaking problem valve(s) obtaining adequate shut off? (EQ306)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Are the valve(s) installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ307)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Does the failing element of the valve cause system pressure to exceed the MAOP? (EQ308)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- What is the likelihood of this valve failing? (EQ309)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ310)

  Data Source:

  These valves are located within basins, and PGL Leak Classification states all confined space leaks are Class 1. Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --High

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --About the same

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  WAM Facility Reports

  Your Choice (weight: 0.15) --Within Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Low

- **Specific Valves Experiencing Failure (EQ-FailV-1a) (Remote Oper Valves - All Remote Op Valves)**
  - Interview Start (EQ-FailV-1a)

    Your Choice (weight: 0) --Continue

  - Are the valve(s) addressed in this interview classified as critical valves? (EQ301)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --Yes

- What is the inspection/maintenance frequency for this type of equipment? (EQ302)

  Data Source:

  O&M Plan (Exhibit XII) Gas Operations Section Manual, Chapter 5, Section 5

  Your Choice (weight: 0) --Semi-Annual (Twice a year)

- Do valves stick open or closed? (EQ303)

  Data Source:

  WAM R108 Valve Inspection List and SME Alonzo Foster

  Your Choice (weight: 0) --No

- Are these valve(s) malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ304)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- Does the problem with these valves result in gas leaking outside of the pipeline? (EQ305)

  Data Source:

  WAM R104/109 Leak Reports Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Are leaking problem valve(s) obtaining adequate shut off? (EQ306)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Are the valve(s) installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ307)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Does the failing element of the valve cause system pressure to exceed the MAOP? (EQ308)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- What is the likelihood of this valve failing? (EQ309)

Data Source:

Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

Your Choice (weight: 1) --Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ310)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --High

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0.2) --Substantially greater

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  WAM Facility Reports

  Your Choice (weight: 0.15) --Within Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0.1) --High

- **Specific Valves Experiencing Failure (EQ-FailV-1a) (Kerotest Valve - Kerotest Valve (Kerotest, Prior to Mid 1980's))**

  - Interview Start (EQ-FailV-1a)

    Your Choice (weight: 0) --Continue

- Are the valve(s) addressed in this interview classified as critical valves? (EQ301)

  Your Choice (weight: 0) --Yes

- What is the inspection/maintenance frequency for this type of equipment? (EQ302)

  Data Source:

  WAM R108 Valve Inspection List

  Your Choice (weight: 0) --Bi-Annual (Every other year) or Greater

- Do valves stick open or closed? (EQ303)

  Data Source:

  WAM R108 Valve Inspection List. Per SME Panel, generally, the bolts on the underside of the valve corrode.

  Your Choice (weight: 0) --No

- Are these valve(s) malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ304)

  Data Source:

  WAM R108 Valve Inspection List. Per SME Panel, generally, the bolts on the underside of the valve corrode.

  Your Choice (weight: 0) --Yes

- Does the problem with these valves result in gas leaking outside of the pipeline? (EQ305)

  Data Source:

  WAM 104/109 Leak Repair Database

  Your Choice (weight: 0) --Yes

- Are leaking problem valve(s) obtaining adequate shut off? (EQ306)

  Data Source:

  WAM 104/109 Leak Repair Database

  Your Choice (weight: 0) --No

- Are the valve(s) installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ307)

  Your Choice (weight: 0) --Yes

- Does the failing element of the valve cause system pressure to exceed the MAOP? (EQ308)

  Data Source:

  These are isolation valves.

  Your Choice (weight: 0) --No

- What is the likelihood of this valve failing? (EQ309)

  Data Source:

  WAM 104/109 Leak Repair Database

  Your Choice (weight: 2) --Medium

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ310)

  Data Source:

  WAM 104/109 Leak Repair Database

  Your Choice (weight: 0) --Low

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  This section pertains specifically to valves less than 4" diameter.

  Your Choice (weight: 0) --About the same

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  WAM 104/109 Leak Repair Database

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  Cfirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Data Source:

  This section pertains specifically to valves less than 4" diameter.

  Your Choice (weight: 0) --Low

- **Specific Valves Experiencing Failure (EQ-FailV-1a) (Security Valves - Slam Shut Security Valves)**

  - Interview Start (EQ-FailV-1a)

    Your Choice (weight: 0) --Continue

- Are the valve(s) addressed in this interview classified as critical valves? (EQ301)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- What is the inspection/maintenance frequency for this type of equipment? (EQ302)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Semi-Annual (Twice a year)

- Do valves stick open or closed? (EQ303)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Are these valve(s) malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ304)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- Does the problem with these valves result in gas leaking outside of the pipeline? (EQ305)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- Are leaking problem valve(s) obtaining adequate shut off? (EQ306)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Are the valve(s) installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ307)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Yes

- Does the failing element of the valve cause system pressure to exceed the MAOP? (EQ308)

  Data Source:

Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

Your Choice (weight: 1) --Yes

- What is the likelihood of this valve failing? (EQ309)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ310)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --High

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --About the same

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0.05) --Moderate

- **Specific Valves Experiencing Failure (EQ-FailV-1a) (Gas Operations Distribution Valves - Distribution Valves Located Inside Valve Basins)**
  - Interview Start (EQ-FailV-1a)

    Your Choice (weight: 0) --Continue

  - Are the valve(s) addressed in this interview classified as critical valves? (EQ301)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --Yes

  - What is the inspection/maintenance frequency for this type of equipment? (EQ302)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --Annual

  - Do valves stick open or closed? (EQ303)

    Data Source:

    WAM R108 Valve Inspection List Report

    Your Choice (weight: 0) --Yes

  - Are these valve(s) malfunctioning due to failing seals, gaskets, o-rings, packing, etc.? (EQ304)

    Data Source:

    WAM R108 Valve Inspection List Report

    Your Choice (weight: 0) --Yes

  - Does the problem with these valves result in gas leaking outside of the pipeline? (EQ305)

    Data Source:

    WAM R104/109 Leak Report

    Your Choice (weight: 0) --Yes

  - Are leaking problem valve(s) obtaining adequate shut off? (EQ306)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

    Your Choice (weight: 0) --Yes

  - Are the valve(s) installed per the manufacturer's specifications and appropriate for current operating conditions? (EQ307)

    Data Source:

    Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

Your Choice (weight: 0) --Yes

- Does the failing element of the valve cause system pressure to exceed the MAOP? (EQ308)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --No

- What is the likelihood of this valve failing? (EQ309)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --Low

- What is the likelihood that a failure of this equipment will result in a Grade 1 leak? (EQ310)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 1) --High

- Review the guidance. (EQCSQ0)

  Your Choice (weight: 0) --Continue

- Is the size/capacity of the equipment substantially greater or lesser than other equipment in the system as a whole? (EQCSQ1)

  Data Source:

  Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

  Your Choice (weight: 0) --About the same

- Does the equipment primarily affect the system located in the business district? (EQCSQ2)

  Data Source:

  WAM Facility Reports

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (EQCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this equipment were to fail? (EQCSQ4)

Data Source:

Answered by SME Alonzo Foster, Supervisory Engineer Gas Operations

Your Choice (weight: 0) --Low

Incorrect Operations Threat

- **Incorrect Operations (IOP) (PEOPLES GAS - Entire System)**
  - Interview Start (IOP)

    Your Choice (weight: 0) --Continue

  - How many leak repairs resulting from incorrect operations occurred during the years shown? (IOP-Leak)

    Data Source:

    PHMSA Annual Reports

    Your Choice (weight: 0) --

    Table 11.24. Leak Repairs From PHMSA 7100.1-1

	Incorrect Operations		Totals	
End of Year	**Mains**	**Services**	**Mains**	**Services**
In 2005	0	0	0	0
In 2006	1	1	1	1
In 2007	0	1	0	1
In 2008	0	2	0	2
In 2009	1	0	1	0
In 2010	3	2	3	2
In 2011	2	7	2	7
In 2012	2	8	2	8
In 2013	8	12	8	12
In 2014	0	8	0	8

  - Have failures due to inadequate procedures been experienced during the past 15 years? (IOP101)

    Data Source:

    Per Tech Training, O&M Plan Exhibit I, Distribution Manual General Order 3.000 PROCEDURE FOR PRESSURE TESTING MAINS, BY-PASS PIPING AND SERVICE PIPES. Also O&M Plan Exhibit II Field Service Manual, Section 15 Working On Gas Piping Inside Premises (Bond Wire).

    Your Choice (weight: 1) --Yes

  - Have failures due to a failure to follow procedures been experienced? (IOP104)

    Data Source:

    LKMS and WAM Cleared Leaks Databases.

    Your Choice (weight: 1) --Yes

  - Have any employees or contractors had operator qualification credentials revoked due to poor performance of any covered task? (IOP105)

Data Source:

Tech Training Disqualification Sheet

Your Choice (weight: 1) --Yes

- Have employees or contractors tested positive for drugs or alcohol (other than pre-hire tests)? (IOP106)

  Data Source:

  Human Resources

  Your Choice (weight: 1) --Yes

- Provide Additional Information (IOPSet2)

  Your Choice (weight: 0) --

  - **Drugs and Alcohol (IOP-Drug) (PEOPLES GAS - Entire System)**

    - Interview Start (IOP-Drug)

      Your Choice (weight: 0) --Continue

    - Is the number of positive drug or alcohol tests/employee increasing? (IOP-Proc101)

      Data Source:

      First Advantage Database via HR contact Sandra Hallock.

      Your Choice (weight: 0) --

      Table 11.25. End of Year

	Positive Drug or Alcohol Tests	Total Employees	Tests/Empl
In 2005	3	883	0.003
In 2006	2	858	0.002
In 2007	3	883	0.003
In 2008	0	602	0.000
In 2009	2	605	0.003
In 2010	5	612	0.008
In 2011	4	628	0.006
In 2012	4	789	0.005
In 2013	4	812	0.005
In 2014	5	829	0.006

    - SHRIMP has determined that leaks, failures or damages are increasing.**(see guidance)**.

      Do you accept this determination? (IOP-Proc102iok)

      Data Source:

      First Advantage Database via HR contact Sandra Hallock.

      Your Choice (weight: 0) --Do Not Accept

    - Enter explanation (IOP-Proc102iexp)

      Data Source:

      First Advantage Database via HR contact Sandra Hallock.

      Your Choice (weight: 0) --There is no data providing any correlation between the increased number of positive

test results and any specific failures or leaks.

- Your data and choices indicate that failures due to drugs and alcohol are not increasing per year. (IOP-Proc102d)

  Your Choice (weight: 0) --Continue

- Confirm that no other incorrect operations problems are known. (IOP-Proc204)

  Your Choice (weight: 0) --Accept

- **Failure To Follow Procedures (IOP-Follow) (PEOPLES GAS - Entire System)**
  - Interview Start (IOP-Follow)

    Your Choice (weight: 0) --Continue

  - Is the number of failures due to to a failure to follow procedures increasing? (IOP-Proc101)

    Data Source:

    WAM Leak Database

    Your Choice (weight: 0) --

    Table 11.26. End of Year

	Failures
In 2005	0
In 2006	0
In 2007	0
In 2008	0
In 2009	0
In 2010	2
In 2011	7
In 2012	4
In 2013	11
In 2014	6

  - SHRIMP has determined that leaks, failures or damages are increasing.**(see guidance)**.

    Do you accept this determination? (IOP-Proc102iok)

    Your Choice (weight: 0) --Do Not Accept

  - Enter explanation (IOP-Proc102iexp)

    Your Choice (weight: 0) --For Legacy Leak system (LKMS), data is not available to discern what the root cause of the Incorrect Operation is. Therefore, those attributed to failure to follow procedures is unknown. A value of 0 was entered into the table for these years.

  - Your data and choices indicate that failures due to a failure to follow procedures are not increasing per year. (IOP-Proc102d)

    Your Choice (weight: 0) --Continue

  - Confirm that no other incorrect operations problems are known. (IOP-Proc204)

    Your Choice (weight: 0) --Accept

- **Inadequate Procedures (IOP-Proc) (PEOPLES GAS - Entire System)**
  - Interview Start (IOP-Proc)

    Your Choice (weight: 0) --Continue

  - Is the number of failures due to inadequate procedures increasing? (IOP-Proc101)

    Data Source:

    Per Tech Training. O&M Plan Exhibit I, Distribution Manual General Order 3.000 Procedure for Pressure Testing Mains, By-Pass Piping, and Service Pipes. Also, O&M Plan Exhibit II Field Service Manual, Section 15 Working on Gas Piping Inside Premises (Bond Wire).

    Your Choice (weight: 0) --

    Table 11.27. End of Year

	Failures
In 2005	0
In 2006	0
In 2007	0
In 2008	0
In 2009	0
In 2010	2
In 2011	0
In 2012	0
In 2013	2
In 2014	0

  - SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

    Do you accept this determination? (IOP-Proc102dok)

    Your Choice (weight: 0) --Accept

  - Your data and choices indicate that failures due to inadequate procedures are not increasing per year. (IOP-Proc102d)

    Data Source:

    Procedures are evaluated/reviewed annually.

    Your Choice (weight: 0) --Continue

  - Confirm that no other incorrect operations problems are known. (IOP-Proc204)

    Your Choice (weight: 0) --Accept

- **Operator Qualification Revocation (IOP-Qual) (PEOPLES GAS - Entire System)**
  - Interview Start (IOP-Qual)

    Your Choice (weight: 0) --Continue

  - Is the number of "for cause" OQ revocations per 100 employee increasing? (IOP-Proc101)

    Data Source:

    Tech Training Disqualification Sheet

Your Choice (weight: 0) --

Table 11.28. End of Year

	For Cause OQ Revocations	Total Employees	OQ/100 Empl
In 2005	0	883	0.000
In 2006	0	858	0.000
In 2007	0	883	0.000
In 2008	0	602	0.000
In 2009	0	605	0.000
In 2010	0	612	0.000
In 2011	0	628	0.000
In 2012	0	789	0.000
In 2013	0	812	0.000
In 2014	27	829	3.257

- SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

  Do you accept this determination? (IOP-Proc102dok)

  Your Choice (weight: 0) --Do Not Accept

- Enter explanation (IOP-Proc102dexp)

  Your Choice (weight: 0) --Disqualifications have only been actively tracked for the last year. Values of "0" are entered for each previous year.

- Have these increasing failures been corrected? (IOP-Proc102i)

  Data Source:

  Tech Training Disqualification Sheet.

  Your Choice (weight: 0) --Yes

- Enter explanation (IOP-Proc102f)

  Data Source:

  Tech Training Disqualification Sheet.

  Your Choice (weight: 0) --All previously disqualified employees that are still employed were subsequently re-qualified.

- Confirm that no other incorrect operations problems are known. (IOP-Proc204)

  Your Choice (weight: 0) --Accept

Material, Weld or Joint Failure Threat

- **Material, Weld or Joint Failure (MW) (PEOPLES GAS - Entire System)**
  - Interview Start (MW)

    Data Source:

    Interview held with SME William Good, Supervisory Engineer, PGL Compliance Group

Your Choice (weight: 0) --Continue

- How many leak repairs resulting from material, weld or joint problems occurred during the years shown? (MW-Leak)

  Data Source:

  PHMSA Annual Reports

  Your Choice (weight: 0) --

Table 11.29. Leak Repairs From PHMSA 7100.1-1

	Material, Weld or Joint Failure		Totals	
End of Year	Mains	Services	Mains	Services
In 2005	1	1	1	1
In 2006	0	0	0	0
In 2007	1	3	1	3
In 2008	0	3	0	3
In 2009	4	1	4	1
In 2010	2	3	2	3
In 2011	2	6	2	6
In 2012	46	77	46	77
In 2013	67	50	67	50
In 2014	71	48	71	48

- Have manufacturing defects on pipe or non-pipe components been experienced? (MW101)

  Data Source:

  WAM R104/109 Leak Reports

  Your Choice (weight: 1) --Yes

- What material is defective? (MW-SegMfg)

  Data Source:

  SME William Good, Supervisory Engineer, PGL Compliance Group

  Your Choice (weight: 0) --

Table 11.30. Geographic Area or Project Name

	Pipe or Component Item	Size	Wall Thickness or SDR	Grade	Manufacturing Process	Coating	Date Manufacturered	Date Installed	Contractor / Crews	Supplier
Service Pipe	Clear Plastic									
Fittings	Mechanical Joint									

- Have failures due to workmanship defects been experienced? (MW102)

  Data Source:

  SME William Good, Supervisory Engineer, PGL Compliance Group Material Failure Database

  Your Choice (weight: 0) --No

- Do any of the following materials exist on the system? (MW103)

  Data Source:

  Tech Training - Charlie Bair

Your Choice (weight: 1) --

Compression Couplings for PE Pipe

- Provide Additional Information (MWSet3)

Your Choice (weight: 0) --

- **Known Materials (MW-Matl) (Known Material - Compression Couplings for PE Pipe)**
  - Interview Start (MW-Matl)

    Your Choice (weight: 0) --Continue

  - How often do failures occur in this section? (MW301)

    Data Source:

    SME William Good, Supervisory Engineer, PGL Compliance Group Material Failure Database LKMS Database (2006-2009) WAM R104/109 Leak Reports

    Your Choice (weight: 3) --More than once per year

  - Are failures in this section/component increasing or decreasing? (MW302)

    Data Source:

    Material Failure Reports - PHMSA For years 2005 through 2009, Legacy leak data does not provide sufficient enough information to discern if a leak was on a plastic compression fitting. Therefore, a value of (7) was entered, which was the average number of leaks for years 2010 through 2014, in which reliable data was available.

    Your Choice (weight: 0) --

    Table 11.31. End of Year

	Failures
In 2005	7
In 2006	7
In 2007	7
In 2008	7
In 2009	7
In 2010	2
In 2011	2
In 2012	19
In 2013	9
In 2014	4

  - SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

    Do you accept this determination? (MW302dok)

    Your Choice (weight: 0) --Accept

  - Your data and choices indicate that failures due to materials, welds or joints are not increasing per year. (MW302d)

    Your Choice (weight: 0) --Continue

  - Do failures occur more frequently than the scheduled leak survey intervals? (MW303)

    Data Source:

LKMS Database (2006-2009) WAM R104/109 Leak Reports

Your Choice (weight: 0) --Yes

- Have your current material specification requirements and construction/installation procedures been modified to address this issue? (MW304)

  Data Source:

  Electrofusion is the preferred method for joining plastic pipe. SME William Good, Supervisory Engineer, PGL Compliance Group

  Your Choice (weight: 0) --Yes

- Has the pipe/component on this section been pressure tested in accordance to Part 192, subpart J? (MW305)

  Data Source:

  Integrys Standard 1030 - Pressure Testing

  Your Choice (weight: 0) --Yes

- What is the likelihood that a leak in this section will become a Grade 1 leak? (MW306)

  Data Source:

  SME William Good, Supervisory Engineer, PGL Compliance Group

  Your Choice (weight: 0) --Low

- Review the guidance. (MWCSQ0)

  Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (MWCSQ1)

  Data Source:

  SME William Good, Supervisory Engineer, PGL Compliance Group

  Your Choice (weight: 0) --About the same

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (MWCSQ2)

  Data Source:

  WAM Facility Reports and SME William Good, Supervisory Engineer, PGL Compliance Group

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (MWCSQ3)

  Data Source:

  CFirst Leak Response Time report.

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (MWCSQ4)

  Data Source:

  WAM R104/109 Leak Reports. Plastic compression fittings are generally located on service pipes.

  Your Choice (weight: 0) --Low

- **Manufacturing Defects (MW-Mfg) (Service Pipe - Clear Plastic)**

  - Interview Start (MW-Mfg)

    Data Source:

    This threat interview addresses the specific material defects with respect to Clear Plastic, and not necessarily any manufacturing defect.

    Your Choice (weight: 0) --Continue

  - How often do failures occur in this section? (MW301)

    Data Source:

    LKMS database average 1/per year for 2005-2009 WAM R104/109 Leak Reports

    Your Choice (weight: 3) --More than once per year

  - Are failures in this section/component increasing or decreasing? (MW302)

    Data Source:

    WAM R104/109 Leak Reports Material Failure Reports - PHMSA For years 2005 through 2009, Legacy leak data does not provide sufficient enough information to discern if a leak due to material failure was on a clear plastic service. Therefore, a value of (14) was entered, which was the average number of leaks for years 2010 through 2014, in which reliable data was available.

    Your Choice (weight: 0) --

    Table 11.32. End of Year

	Failures
In 2005	14
In 2006	14
In 2007	14
In 2008	14
In 2009	14
In 2010	13
In 2011	20
In 2012	5
In 2013	11
In 2014	22

  - SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

    Do you accept this determination? (MW302dok)

    Your Choice (weight: 0) --Accept

  - Your data and choices indicate that failures due to materials, welds or joints are not increasing per year. (MW302d)

    Your Choice (weight: 0) --Continue

- Do failures occur more frequently than the scheduled leak survey intervals? (MW303)

  Data Source:

  LKMS Database (2006-2009) WAM R104/109 Leak Report

  Your Choice (weight: 0) --Yes

- Have your current material specification requirements and construction/installation procedures been modified to address this issue? (MW304)

  Data Source:

  We no longer install Clear Plastic Services. SME William Good, Supervisory Engineer, PGL Compliance Group

  Your Choice (weight: 0) --Yes

- Has the pipe/component on this section been pressure tested in accordance to Part 192, subpart J? (MW305)

  Data Source:

  Integrys Standard 1030 - Pressure Testing

  Your Choice (weight: 0) --Yes

- What is the likelihood that a leak in this section will become a Grade 1 leak? (MW306)

  Data Source:

  WAM R104/109 Leak Reports. Approximately 30% of clear plastic service leaks are initially graded as Grade 1.

  Your Choice (weight: 1) --High

- Review the guidance. (MWCSQ0)

  Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (MWCSQ1)

  Data Source:

  Section pertians specifically to service piping. SME William Good, Supervisory Engineer, PGL Compliance Group

  Your Choice (weight: 0) --About the same

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (MWCSQ2)

  Data Source:

  Section pertains specifically to service piping. SME William Good, Supervisory Engineer, PGL Compliance Group

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible

failure? (MWCSQ3)

Data Source:

CFirst Leak Response Time Report

Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (MWCSQ4)

  Data Source:

  Section pertains specifically to service piping. SME William Good, Supervisory Engineer, PGL Compliance Group

  Your Choice (weight: 0) --Low

- **Manufacturing Defects (MW-Mfg) (Fittings - Mechanical Joint)**

  - Interview Start (MW-Mfg)

    Data Source:

    This threat interview addresses the specific material defects with respect to Mechanical Joints, and not any manufacturing defect.

    Your Choice (weight: 0) --Continue

  - How often do failures occur in this section? (MW301)

    Data Source:

    LKMS Database (2006-2009) WAM R104/109 Leak Reports

    Your Choice (weight: 3) --More than once per year

  - Are failures in this section/component increasing or decreasing? (MW302)

    Data Source:

    WAM R104/109 Leak Reports Material Failure Reports - PHMSA For years 2005 through 2009, Legacy leak data does not provide sufficient enough information to discern if a leak due to material defect was on a mechanical fitting. Therefore, a value of (63) was entered, which was the average number of leaks for years 2010 through 2014, in which more reliable data was available.

    Your Choice (weight: 0) --

    Table 11.33. End of Year

	Failures
In 2005	63
In 2006	63
In 2007	63
In 2008	63
In 2009	63
In 2010	63
In 2011	53
In 2012	47
In 2013	82
In 2014	71

  - SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

    Do you accept this determination? (MW302dok)

Your Choice (weight: 0) --Accept

- Your data and choices indicate that failures due to materials, welds or joints are not increasing per year. (MW302d)

  Your Choice (weight: 0) --Continue

- Do failures occur more frequently than the scheduled leak survey intervals? (MW303)

  Data Source:

  LKMS Database (2006-2009) WAM R104/109 Leak Reports

  Your Choice (weight: 0) --Yes

- Have your current material specification requirements and construction/installation procedures been modified to address this issue? (MW304)

  Data Source:

  There have not been specific procedure changes or specification updates for the use or installation of mechanical fittings.

  Your Choice (weight: 0) --No

- Has the pipe/component on this section been pressure tested in accordance to Part 192, subpart J? (MW305)

  Data Source:

  Integrys Standard 1030 - Pressure Testing

  Your Choice (weight: 0) --Yes

- What is the likelihood that a leak in this section will become a Grade 1 leak? (MW306)

  Data Source:

  LKMS Database (2006-2009) WAM R104/109 Leak Reports

  Your Choice (weight: 0) --Low

- Review the guidance. (MWCSQ0)

  Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (MWCSQ1)

  Data Source:

  SME William Good, Supervisory Engineer, PGL Compliance Group Material Failure Database

  Your Choice (weight: 0.1) --Somewhat greater

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (MWCSQ2)

  Data Source:

SME William Good, Supervisory Engineer, PGL Compliance Group Material Failure Database

Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (MWCSQ3)

  Data Source:

  CFirst Leak Response Time Report

  Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (MWCSQ4)

  Data Source:

  SME William Good, Supervisory Engineer, PGL Compliance Group Material Failure Database

  Your Choice (weight: 0) --Low

Excavation Damage Threat

- **Excavation Damage (OFEXC) (PEOPLES GAS - Entire System)**
  - Interview Start (OFEXC)

    Your Choice (weight: 0) --Continue

  - Does your system participate in a qualified one-call system (see 192.614)? (OFEXC101)

    Data Source:

    City of Chicago uses DIGGER.

    Your Choice (weight: 0) --Yes

  - Which system do you do you use? (OFEXC102)

    Your Choice (weight: 0) --Illinois-Digger (Chicago Utility Alert Network)

  - Are you a Master Meter Operator? (OFEXC103)

    Your Choice (weight: 0) --No

  - Do you physically control access to your pipeline location? (OFEXC104)

    Your Choice (weight: 0) --No

  - How many excavation leak repairs occurred during the years shown? (OFEXC105)

    Data Source:

    PHMSA Annual Reports

    Your Choice (weight: 0) --

Table 11.34. Leak Repairs From PHMSA 7100.1-1

	Excavation Damage		Totals	
End of Year	Mains	Services	Mains	Services
In 2005	120	460	120	460
In 2006	140	467	140	467
In 2007	127	455	127	455
In 2008	124	535	124	535
In 2009	77	486	77	486
In 2010	112	442	112	442
In 2011	150	556	150	556
In 2012	160	795	160	795
In 2013	311	594	311	594
In 2014	234	512	234	512

- How many excavation caused damages not resulting in leaks reported on the PHMSA 7100.1-1 form have occurred during the years shown? (OFEXC105a)

  Data Source:

  Hit Database is not currently used to capture excavation damages that did not result in a leak. Answered by System Integrity Manager Vip Kapoor.

  Your Choice (weight: 0) --

Table 11.35. End of Year

	Mains	Services
In 2005	0	0
In 2006	0	0
In 2007	0	0
In 2008	0	0
In 2009	0	0
In 2010	0	0
In 2011	0	0
In 2012	0	0
In 2013	0	0
In 2014	0	0

- How many excavation tickets (receipt of information by the underground facility operator from the one-call system) were received during the years shown? (OFEXC106)

  Data Source:

  Estimates for 2005-2006 from previous DIMP entries. PHMSA Annual Reports (2007-2014)

  Your Choice (weight: 0) --

Table 11.36. End of Year

	Damages Previously Entered	Excavation Tickets	Damages Per 1000 Tickets
In 2005	580	92000	6
In 2006	607	92000	7
In 2007	582	92459	6
In 2008	659	92765	7
In 2009	563	93046	6
In 2010	554	91201	6
In 2011	706	115626	6
In 2012	955	161666	6
In 2013	905	169355	5
In 2014	746	176227	4

- SHRIMP has determined that leaks, failures or damages are not increasing.**(see guidance)**.

Do you accept this determination? (OFEXC106bok)

Data Source:

While we do accept the determination of decreased excavation damages, WAM cleared leak reports R104/109 do not necessarily reflect the data that is in the System Integrity Hit Database. Answered by Manager System Integrity Vip Kapoor.

Your Choice (weight: 0) --Accept

- Your data and choices indicate that excavation damages per 1000 tickets are not increasing. (OFEXC106b)

  Your Choice (weight: 0) --Continue

- Provide Additional Information (OFEXC106e)

  Your Choice (weight: 0) --

  - **Blasting Damage (OFEXC-Blast) (PEOPLES GAS - Entire System)**
    - Interview Start (OFEXC-Blast)

      Your Choice (weight: 0) --Continue

    - Has damage occurred due to blasting? (OFEXC137)

      Data Source:

      WAM Reports and SME knowledge. Answered by Manager System Integrity Vip Kapoor.

      Your Choice (weight: 0) --No

    - Are there portions of the system located where excavation in the area of pipeline would require the use of explosives? (OFEXC135)

      Data Source:

      WAM Reports and SME knowledge. Answered by Manager System Integrity Vip Kapoor.

      Your Choice (weight: 0) --No

    - Are there portions of the system in known areas of blasting or demolition activity, such as rock quarries or coal mining? (OFEXC136)

      Data Source:

      WAM Reports and SME knowledge. Answered by Manager System Integrity Vip Kapoor.

      Your Choice (weight: 0) --No

    - Confirm that no other excavation problems are known. (OFEXC204)

      Your Choice (weight: 0) --Accept

  - **Concentrated Damages (OFEXC-Conc) (PEOPLES GAS - Entire System)**
    - Interview Start (OFEXC-Conc)

      Your Choice (weight: 0) --Continue

- You previously entered this information regarding excavation damages and tickets during the years shown.

  Click Next to proceed. (OFEXC206)

  Data Source:

  PHMSA 7100 Annual Reports

  Your Choice (weight: 0) --

Table 11.37. End of Year

	Damages Previously Entered	Excavation Tickets Previously Entered	Damages Per 1000 Tickets
In 2005	580	92000	6
In 2006	607	92000	7
In 2007	582	92459	6
In 2008	659	92765	7
In 2009	563	93046	6
In 2010	554	91201	6
In 2011	706	115626	6
In 2012	955	161666	6
In 2013	905	169355	5
In 2014	746	176227	4

- Are these excavation damages concentrated in certain locations or distributed across the entire system? (OFEXC207)

  Data Source:

  PGL Hit Database - Hits to company facilities are generally distributed evenly across all three districts. Answered by V. Kapoor SME Manager System Integrity.

  Your Choice (weight: 0) --Distributed across the entire system

- Are these locate tickets concentrated in certain locations or distributed across the entire system? (OFEXC208)

  Data Source:

  PGL Facilities Damage Database. Locate requests are generally distributed among the city evenly. Answered by V. Kapoor SME Manager System Integrity.

  Your Choice (weight: 0) --Distributed across the entire system

- Confirm that no other excavation problems are known. (OFEXC204)

  Data Source:

  Answered by V. Kapoor SME Manager System Integrity.

  Your Choice (weight: 0) --Accept

- **Crew or Contractor Damages (OFEXC-Crew) (PEOPLES GAS - Entire System)**

  - Interview Start (OFEXC-Crew)

    Your Choice (weight: 0) --Continue

  - Has excavation damage been caused by your crews or your contractors? (OFEXC115)

    Data Source:

    PGL Facilities Damage database

Your Choice (weight: 0) --Yes

- How many excavation damages were caused by the your crews and/or your contractors on the system during the years shown? (OFEXC116)

  Data Source:

  PGL Hit Database

  Your Choice (weight: 0) --

Table 11.38. End of Year

	Damages Caused By Your Crews	Damages Caused By Your Contractors
In 2005	2	0
In 2006	6	5
In 2007	4	34
In 2008	6	25
In 2009	4	3
In 2010	6	3
In 2011	12	104
In 2012	12	112
In 2013	9	56
In 2014	8	96

- Are excavation damages caused by your crews evenly distributed or concentrated in a few operator crews? (OFEXC118)

  Data Source:

  PGL Facilities Damage database

  Your Choice (weight: 0) --Evenly Distributed

- Are excavation damages being caused by your crews or your contractors not following one call laws? (OFEXC122)

  Data Source:

  PGL Facilities Damage database

  Your Choice (weight: 10) --Yes

- Have any excavation damages caused by your crews or contractors due to mis-located lines been caused by poorly performing locating equipment? (OFEXC123)

  Data Source:

  No record of this cause in PGL Hit Database

  Your Choice (weight: 0) --No

- Are excavation damages caused by your crews or contractors due to unmarked or inaccurately marked facilities? (Do not include excavation damages caused by poorly performing locating equipment.) (OFEXC124)

  Data Source:

  PGL Facilities Damage database

  Your Choice (weight: 10) --Yes

- Are excavation damages caused by failure to protect pipe during backfill operations? (OFEXC125)

  Data Source:

  PGL Facilities Damage database

  Your Choice (weight: 9) --

  Steel

  Plastic

  Cast Iron

  Other

- Have excavation damages caused by your crews or contractors occurred due to failure to follow company procedures/safety practices? (Do not include excavation damages caused by failure to follow one-call laws.) (OFEXC126)

  Data Source:

  PGL Facilities Damage database

  Your Choice (weight: 3) --Yes

- Do you want to section your system for this threat based on damages by specific company and/or contractors crews? (OFEXC120)

  Data Source:

  Answered by SME Manager System Integrity Vip Kapoor. Decision was made to section by 1st party hits and 2nd party hits.

  Your Choice (weight: 0) --Yes

- Enter sections for assessing the threat of crew or contractor excavation damages. (OFEXC120a)

  Data Source:

  PGL Facilities Database

  Your Choice (weight: 0) --

Table 11.39. Crew Name

	Company or Contractor	Description
Peoples Gas	Peoples Gas	Damages to PGL facilities by PGL Crews
Peoples Gas Contractors	Peoples Gas Contractors	Damages to PGL facilities by 2nd Parties

- Provide Additional Information (OFEXC120c)

  Your Choice (weight: 0) --

  - **Crew or Contractor Damages (OFEXC-Crew-1a) (Peoples Gas - Damages to PGL facilities by PGL Crews (Peoples Gas))**

    - Interview Start (OFEXC-Crew-1a)

      Your Choice (weight: 0) --Continue

    - Are excavation damages being caused by your crews or your contractors not following one call laws? (OFEXC122)

      Data Source:

Only one instance of this over the past 10 years. Answered by SME Vip Kapoor, Manager of System Integrity. Data source PGL Facilites Damage Database.

Your Choice (weight: 0) --No

- Have any excavation damages caused by your crews or contractors due to mis-located lines been caused by poorly performing locating equipment? (OFEXC123)

  Data Source:

  No record of this cause in PGL Hit Database

  Your Choice (weight: 0) --No

- Are excavation damages caused by your crews or contractors due to unmarked or inaccurately marked facilities? (Do not include excavation damages caused by poorly performing locating equipment.) (OFEXC124)

  Data Source:

  PGL Facilities Damage Database

  Your Choice (weight: 10) --Yes

- Are excavation damages caused by failure to protect pipe during backfill operations? (OFEXC125)

  Data Source:

  Facilities Damage Database

  Your Choice (weight: 2) --

  Plastic

- Have excavation damages caused by your crews or contractors occurred due to failure to follow company procedures/safety practices? (Do not include excavation damages caused by failure to follow one-call laws.) (OFEXC126)

  Data Source:

  PGL Facilities Damage database

  Your Choice (weight: 3) --Yes

- Review the guidance. (OFEXCCSQ0)

  Your Choice (weight: 0) --Continue

- Have the (crews/contractors/excavators) identified for this section caused damage that resulted in a reportable incident? (OFEXCCSQ1)

  Data Source:

  Facilities Damage Database and PHMSA Incident Reporting.

  Your Choice (weight: 0) --No

- Considering disruption of service and cost to return the system to service, how serious are the damages caused by the (crews/contractors/excavators) identified for this section when compared to all other excavation caused damages? (OFEXCCSQ2)

Data Source:

Answered by V. Kapoor SME Manager System Integrity.

Your Choice (weight: 0) --Less serious

- **Crew or Contractor Damages (OFEXC-Crew-1a) (Peoples Gas Contractors - Damages to PGL facilities by 2nd Parties (Peoples Gas Contractors))**
  - Interview Start (OFEXC-Crew-1a)

    Your Choice (weight: 0) --Continue

  - Are excavation damages being caused by your crews or your contractors not following one call laws? (OFEXC122)

    Data Source:

    PGL Facilities Damage Database

    Your Choice (weight: 10) --Yes

  - Have any excavation damages caused by your crews or contractors due to mis-located lines been caused by poorly performing locating equipment? (OFEXC123)

    Data Source:

    No record of this cause in PGL Facilities Damage Database

    Your Choice (weight: 0) --No

  - Are excavation damages caused by your crews or contractors due to unmarked or inaccurately marked facilities? (Do not include excavation damages caused by poorly performing locating equipment.) (OFEXC124)

    Data Source:

    PGL Facilities Damage Database

    Your Choice (weight: 10) --Yes

  - Are excavation damages caused by failure to protect pipe during backfill operations? (OFEXC125)

    Data Source:

    PGL Facilities Damage Database

    Your Choice (weight: 9) --

    Steel

    Plastic

    Cast Iron

    Other

  - Have excavation damages caused by your crews or contractors occurred due to failure to follow company procedures/safety practices? (Do not include excavation damages caused by failure to follow one-call laws.) (OFEXC126)

    Data Source:

PGL Facilities Damage Database

Your Choice (weight: 3) --Yes

- Review the guidance. (OFEXCCSQ0)

  Your Choice (weight: 0) --Continue

- Have the (crews/contractors/excavators) identified for this section caused damage that resulted in a reportable incident? (OFEXCCSQ1)

  Data Source:

  Incident ID 20120038-15571. On 12/1/2011, while performing Pipeline Integrity Work, NPL damaged an unmapped 2" HP service pipe. Originally reported as a Distribution Incident, but later changed to Transmission.

  Your Choice (weight: 0) --No

- Considering disruption of service and cost to return the system to service, how serious are the damages caused by the (crews/contractors/excavators) identified for this section when compared to all other excavation caused damages? (OFEXCCSQ2)

  Data Source:

  Answered by V. Kapoor SME Manager System Integrity.

  Your Choice (weight: 0) --Less serious

- **Third Party Damages (OFEXC-Third) (PEOPLES GAS - Entire System)**
  - Interview Start (OFEXC-Third)

    Your Choice (weight: 0) --Continue

  - During the past few years, have excavation damages occurred due to third parties? (OFEXC127)

    Data Source:

    Facilities Damage Database & LKMS database

    Your Choice (weight: 0) --Yes

  - How many excavation damages were caused by third parties during the years shown? (OFEXC128)

    Data Source:

    PGL Facilities Damage Database. No reliable info for 2005. Answered by William Houghton

    Your Choice (weight: 0) --

    Table 11.40. End of Year

	Third Party Damages
In 2005	0
In 2006	1044
In 2007	1027
In 2008	953
In 2009	724
In 2010	735

In 2011	913
In 2012	1156
In 2013	1043
In 2014	1099

- SHRIMP has determined that leaks, failures or damages are increasing.**(see guidance)**.

  Do you accept this determination? (OFEXC128aok)

  Data Source:

  Answered by V. Kapoor SME Manager System Integrity.

  Your Choice (weight: 0) --Accept

- Your data and choices indicate that excavation damages due to third parties are increasing. (OFEXC128a)

  Your Choice (weight: 0) --Continue

- Are excavation damages being caused by third-party excavators not following one call laws? (OFEXC131)

  Data Source:

  Facilities Damage Database

  Your Choice (weight: 10) --Yes

- Have any excavation damages caused by third-party excavators due to mis-located lines been caused by poorly performing locating equipment? (OFEXC132)

  Data Source:

  Nothing in Facilities Damage Database or Performance Metrics about poorly performing locating equipment. Answered also by William Houghton.

  Your Choice (weight: 0) --No

- Are excavation damages caused by third-party excavators due to unmarked or inaccurately marked facilities? (Do not include excavation damages caused by poorly performing locating equipment.) (OFEXC133)

  Data Source:

  Facilities Damage Database & Performance Metrics Spreadsheet.

  Your Choice (weight: 10) --Yes

- Are excavation damages caused by failure to protect pipe during backfill operations? (OFEXC134)

  Data Source:

  Facilities Damage Database

  Your Choice (weight: 9) --

  Steel

  Plastic

  Cast Iron

  Other

- Are there specific third parties that cause a greater number of damages compared to other third parties? (OFEXC129)

  Data Source:

  Facilities Damage Database & Performance Metrics Spreadsheet

  Your Choice (weight: 0) --Yes

- Do you want to section your system for this threat based on damages by specific third parties? (OFEXC130)

  Your Choice (weight: 0) --Yes

- Enter sections for assessing the threat of third party excavation damages. (OFEXC130a)

  Data Source:

  Decision to list these three parties is based on the high number of hits they cause vs. total hits. Answered by V. Kapoor SME Manager System Integrity.

  Your Choice (weight: 0) --

Table 11.41. Third Party

Name

	Description
City of Chicago, Water	Chicago Water Dept
Benchmark Construction	Water Main Installation Contractor for City of Chicago
Joel Kennedy Construction	Water Main Installation Contractor for City of Chicago
Third_Party_05	

- Provide Additional Information (OFEXC130c)

  Your Choice (weight: 0) --

  - **Third Party Damages (OFEXC-Third-1a) (City of Chicago, Water - Chicago Water Dept)**

    - Interview Start (OFEXC-Third-1a)

      Your Choice (weight: 0) --Continue

    - Are excavation damages being caused by third-party excavators not following one call laws? (OFEXC131)

      Data Source:

      PGL Facilities Damage Database

      Your Choice (weight: 10) --Yes

    - Have any excavation damages caused by third-party excavators due to mis-located lines been caused by poorly performing locating equipment? (OFEXC132)

      Data Source:

      No mention of poorly performing locate equipment in PGL Facilities Damage Database.

      Your Choice (weight: 0) --No

    - Are excavation damages caused by third-party excavators due to unmarked or inaccurately marked facilities? (Do not include excavation damages caused by poorly performing locating equipment.) (OFEXC133)

Data Source:

PGL Facilities Damage Database

Your Choice (weight: 10) --Yes

- Are excavation damages caused by failure to protect pipe during backfill operations? (OFEXC134)

  Data Source:

  PGL Facilities Damage Database

  Your Choice (weight: 9) --

  Steel

  Plastic

  Cast Iron

  Other

- Review the guidance. (OFEXCCSQ0)

  Your Choice (weight: 0) --Continue

- Have the (crews/contractors/excavators) identified for this section caused damage that resulted in a reportable incident? (OFEXCCSQ1)

  Data Source:

  PGL Facilities Damage Database

  Your Choice (weight: 0.3) --Yes

- Considering disruption of service and cost to return the system to service, how serious are the damages caused by the (crews/contractors/excavators) identified for this section when compared to all other excavation caused damages? (OFEXCCSQ2)

  Data Source:

  PGL Facilities Damage Database shows City of Chicago Water Department is responsible for app. 37% of all 3rd party damages annually.

  Your Choice (weight: 0.2) --More serious

- **Third Party Damages (OFEXC-Third-1a) (Benchmark Construction - Water Main Installation Contractor for City of Chicago)**

  - Interview Start (OFEXC-Third-1a)

    Your Choice (weight: 0) --Continue

  - Are excavation damages being caused by third-party excavators not following one call laws? (OFEXC131)

    Data Source:

    PGL Facilities Damage Database

    Your Choice (weight: 10) --Yes

- Have any excavation damages caused by third-party excavators due to mis-located lines been caused by poorly performing locating equipment? (OFEXC132)

  Data Source:

  No mention of poorly performing locating equipment in PGL Facilities Damage Database

  Your Choice (weight: 0) --No

- Are excavation damages caused by third-party excavators due to unmarked or inaccurately marked facilities? (Do not include excavation damages caused by poorly performing locating equipment.) (OFEXC133)

  Data Source:

  PGL Facilities Damage Database

  Your Choice (weight: 10) --Yes

- Are excavation damages caused by failure to protect pipe during backfill operations? (OFEXC134)

  Data Source:

  PGL Facilities Damage Database

  Your Choice (weight: 9) --

  Steel

  Plastic

  Cast Iron

  Other

- Review the guidance. (OFEXCCSQ0)

  Your Choice (weight: 0) --Continue

- Have the (crews/contractors/excavators) identified for this section caused damage that resulted in a reportable incident? (OFEXCCSQ1)

  Your Choice (weight: 0) --No

- Considering disruption of service and cost to return the system to service, how serious are the damages caused by the (crews/contractors/excavators) identified for this section when compared to all other excavation caused damages? (OFEXCCSQ2)

  Data Source:

  PGL Facilities Damage Database

  Your Choice (weight: 0.1) --About the same

- **Third Party Damages (OFEXC-Third-1a) (Joel Kennedy Construction - Water Main Installation Contractor for City of Chicago)**

  - Interview Start (OFEXC-Third-1a)

    Your Choice (weight: 0) --Continue

- Are excavation damages being caused by third-party excavators not following one call laws? (OFEXC131)

  Data Source:

  PGL Hit Database

  Your Choice (weight: 10) --Yes

- Have any excavation damages caused by third-party excavators due to mis-located lines been caused by poorly performing locating equipment? (OFEXC132)

  Data Source:

  PGL Hit Database

  Your Choice (weight: 0) --No

- Are excavation damages caused by third-party excavators due to unmarked or inaccurately marked facilities? (Do not include excavation damages caused by poorly performing locating equipment.) (OFEXC133)

  Data Source:

  PGL Hit Database

  Your Choice (weight: 10) --Yes

- Are excavation damages caused by failure to protect pipe during backfill operations? (OFEXC134)

  Your Choice (weight: 9) --

  Steel

  Plastic

  Cast Iron

  Other

- Review the guidance. (OFEXCCSQ0)

  Your Choice (weight: 0) --Continue

- Have the (crews/contractors/excavators) identified for this section caused damage that resulted in a reportable incident? (OFEXCCSQ1)

  Your Choice (weight: 0) --No

- Considering disruption of service and cost to return the system to service, how serious are the damages caused by the (crews/contractors/excavators) identified for this section when compared to all other excavation caused damages? (OFEXCCSQ2)

  Data Source:

  PGL Hit Database

  Your Choice (weight: 0.1) --About the same

Natural Forces Threat

- **Natural Forces (OFNF) (PEOPLES GAS - Entire System)**
  - Interview Start (OFNF)

    Your Choice (weight: 0) --Continue

  - Do leaks repaired per year average one (1) or more? (OFNF101rp)

    Data Source:

    PHMSA Annual Reports

    Your Choice (weight: 0) --

    Table 11.42. Leak Repairs From PHMSA 7100.1-1

	Natural Forces		Totals	
End of Year	**Mains**	**Services**	**Mains**	**Services**
In 2005	61	25	61	25
In 2006	90	35	90	35
In 2007	275	49	275	49
In 2008	321	104	321	104
In 2009	280	57	280	57
In 2010	167	64	167	64
In 2011	206	60	206	60
In 2012	106	28	106	28
In 2013	362	40	362	40
In 2014	360	58	360	58

  - How many natural forces damages not resulting in leaks reported on the PHMSA 7100.1-1 form have occurred during the years shown? (OFNF101nr)

    Data Source:

    Data not available.

    Your Choice (weight: 0) --

    Table 11.43. End of Year

	Mains	Services
In 2005	0	0
In 2006	0	0
In 2007	0	0
In 2008	0	0
In 2009	0	0
In 2010	0	0
In 2011	0	0
In 2012	0	0
In 2013	0	0
In 2014	0	0

  - Here is a summary of your natural forces damages during the years shown.

    Click Next to Continue. (OFNF101)

    Your Choice (weight: 0) --

    Table 11.44. End of Year

		Damages Not	

	Leak Repairs	Reported	Total
In 2005	86	0	86
In 2006	125	0	125
In 2007	324	0	324
In 2008	425	0	425
In 2009	337	0	337
In 2010	231	0	231
In 2011	266	0	266
In 2012	134	0	134
In 2013	402	0	402
In 2014	418	0	418

- SHRIMP has determined that leaks, failures or damages are averaging one (1) or more per year.**(see guidance)**.

  Do you accept this determination? (OFNF101aok)

  Your Choice (weight: 0) --Accept

- Your data and choices indicate that leaks, failures or damages are averaging one (1) or more per year. (OFNF101a)

  Your Choice (weight: 2) --Continue

- Are portions of the system/section in areas prone to land subsidence, earthquakes or washouts? (OFNF102)

  Data Source:

  WAM R104/109 Leak report

  Your Choice (weight: 5) --Yes

- Does the system/section contain Cast Iron pipe 8" or less in diameter? (OFNF301)

  Data Source:

  WAM R43A Facility Reporting.

  Your Choice (weight: 5) --Yes

- Have damages occurred on cast iron due to ground movement, frost heave, earth subsidence? (OFNF302)

  Data Source:

  R104/109 WAM Cleared Leak Reports

  Your Choice (weight: 4) --Yes

- Have natural forces caused leaks, failures or damages to steel or plastic pipeline in the system/section? (OFNF303)

  Data Source:

  R104/109 WAM Cleared Leak Reports

  Your Choice (weight: 3) --Yes

- Are the natural force leaks, failures or damages system-wide or concentrated in local areas? (OFNF103)

  Data Source:

  R104/109 WAM Cleared Leak reporting.

Your Choice (weight: 0) --Concentrated

- Do you want to sub-section areas by concentrated damage repairs from the remainder of the section? (OFNF104)

  Your Choice (weight: 0) --Yes

- Enter sections of concentrated damage repairs. (OFNF105)

  Your Choice (weight: 0) --

Table 11.45. Section

	Mains	Services	Description
Entire System	3244.131	515719	Entire System Except 6" Diameter Cast Iron Mains
6" Cast Iron Mains	1083.114	0	6" Diameter Cast Iron Mains
	0.000	0	
	0.000	0	
	0.000	0	
	0.000	0	
	0.000	0	

- Provide Additional Information (OFNF105a)

  Your Choice (weight: 0) --

  - **Concentrated Area (OFNF-1a) (Entire System - Entire System Except 6" Diameter Cast Iron Mains)**

    - Interview Start (OFNF-1a)

      Your Choice (weight: 0) --Continue

    - Do damages repaired per year average one (1) or more? (OFNF101)

      Data Source:

      2005-2009, Natural Force leaks for this section (non 6"CI) normalized against known leaks for 2010-2014. Approximately 42% of leaks were on non 6"CI for those years. 2010-2014 leaks from WAM R104/109 Cleared Leak Reports.

      Your Choice (weight: 0) --

Table 11.46. End of Year

	Damages Repaired
In 2005	36
In 2006	52
In 2007	136
In 2008	178
In 2009	141
In 2010	61
In 2011	95
In 2012	59
In 2013	187
In 2014	206

    - SHRIMP has determined that leaks, failures or damages are averaging one (1) or more per year.**(see guidance)**.

      Do you accept this determination? (OFNF101aok)

      Your Choice (weight: 0) --Accept

    - Your data and choices indicate that leaks, failures or damages are averaging one (1) or more per year. (OFNF101a)

Your Choice (weight: 2) --Continue

- Are portions of the system/section in areas prone to land subsidence, earthquakes or washouts? (OFNF102)

  Data Source:

  Flood areas near Chicago River.

  Your Choice (weight: 5) --Yes

- Does the system/section contain Cast Iron pipe 8" or less in diameter? (OFNF301)

  Your Choice (weight: 5) --Yes

- Have damages occurred on cast iron due to ground movement, frost heave, earth subsidence? (OFNF302)

  Data Source:

  WAM R104/109 Cleared Leaks Report

  Your Choice (weight: 4) --Yes

- Have natural forces caused leaks, failures or damages to steel or plastic pipeline in the system/section? (OFNF303)

  Data Source:

  WAM R104/109 Cleared Leaks Report

  Your Choice (weight: 3) --Yes

- Review the guidance. (OFNFCSQ0)

  Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (OFNFCSQ1)

  Data Source:

  This section reflects PGLS's system as a whole.

  Your Choice (weight: 0) --About the same

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (OFNFCSQ2)

  Data Source:

  This section reflects PGLS's system as a whole. WAM Facility Reports

  Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (OFNFCSQ3)

  Data Source:

  CFirst Leak Response Time Reporting.

Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (OFNFCSQ4)

  Data Source:

  This section reflects PGLS's system as a whole.

  Your Choice (weight: 0) --Low

- **Concentrated Area (OFNF-1a) (6" Cast Iron Mains - 6" Diameter Cast Iron Mains)**
  - Interview Start (OFNF-1a)

    Your Choice (weight: 0) --Continue

  - Do damages repaired per year average one (1) or more? (OFNF101)

    Data Source:

    2005-2009, Natural Force leaks for this section (6"CI Main) normalized against known leaks for 2010-2014. Approximately 58% of leaks were on 6"CI Mains for those years. 2010-2014 leaks from WAM R104/109 Cleared Leak Reports.

    Your Choice (weight: 0) --

    Table 11.47. End of Year

	Damages Repaired
In 2005	49
In 2006	72
In 2007	188
In 2008	247
In 2009	196
In 2010	75
In 2011	143
In 2012	111
In 2013	208
In 2014	216

  - SHRIMP has determined that leaks, failures or damages are averaging one (1) or more per year.**(see guidance)**.

    Do you accept this determination? (OFNF101aok)

    Your Choice (weight: 0) --Accept

  - Your data and choices indicate that leaks, failures or damages are averaging one (1) or more per year. (OFNF101a)

    Your Choice (weight: 2) --Continue

  - Are portions of the system/section in areas prone to land subsidence, earthquakes or washouts? (OFNF102)

    Data Source:

    Flooding near Chicago River

    Your Choice (weight: 5) --Yes

  - Does the system/section contain Cast Iron pipe 8" or less in diameter? (OFNF301)